

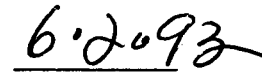
REDACTED VERSION


**SITE INSPECTION TASK WORK PLAN  
FOR  
CASTLE DRIVE & MILES ROAD LANDFILL  
TXD980750368  
WA # 25-6JZZ**

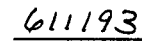
\_\_\_\_\_  
EPA Project Manager

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Date

  
Project Manager

  
Date

  
Team Leader

  
Date

**SITE INSPECTION TASK WORK PLAN  
FOR  
CASTLE DRIVE & MILES ROAD LANDFILL  
TXD980750368  
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**SITE INSPECTION TASK WORK PLAN  
FOR  
CASTLE DRIVE & MILES ROAD LANDFILL  
TXD980750368  
WA # 25-6JZZ**

**1.0 INTRODUCTION**

The Fluor Daniel ARCS Team was tasked by the U.S. Environmental Protection Agency (EPA) to develop the Site Inspection Task Work Plan for the Castle Drive & Miles Road (Castle Miles) Landfill Site (TXD980750368). This site is located in Garland, Dallas County, Texas.

**1.1 Site Sampling Inspection Objectives**

The Site Inspection (SI) is an intermediate investigation study of the pre-remedial process. It further characterizes the site through the Hazard Ranking System (HRS) documentation. The SI expands on information obtained during the Preliminary Assessment (PA) conducted by the Texas Department of Health.

The objectives of the site inspection are to describe possible hazardous waste contamination at the site and correlate this to a sampling strategy. The site specific activities and the responsibilities of the field team will also be identified.

**1.2 Site Description**

The Castle Miles Landfill Site is an active landfill located in northeast Garland, Texas adjacent to the corner of Castle Drive and Miles Road. The geographical coordinates of the center of the site are North 32°56'15" latitude and West 96°34'48" longitude (Ref 1). The Site Location Map is shown as Figure 1.

The site encompasses 61.5 acres (Ref 2) and is adjacent to Castle Landfill (TXD980626766). The site sketch is shown as Figure 2. These two sites are owned and operated by the City of Garland as a single operating landfill. A total of 10 employees work on-site at the landfill (Ref 14). The landfill operates, at a maximum, from 7:00 am to 7:00 pm Monday through Sunday. The landfill only accepts municipal solid wastes, including Duck Creek wastewater treatment plant sludges. No liquid or hazardous waste are accepted (Ref 2). The City of

Garland disposes of approximately 600 tons/day of refuse into the landfill (Ref 12). The Castle Miles portion of the site is not currently accepting wastes. A 12 to 18 inch cover of yellow or black clay covers the top cell of waste (Ref 20). More cells are planned to be added prior to final site closure.

The City of Garland operates the Castle Miles Landfill and the Castle Landfill as one landfill. The site has undergone permit modification to manage these sites as one landfill but still has two operating permits (Permit #1277 for Castle Miles and Permit #1062A for Castle). The site has an engineered clay liner which is a minimum of 3 feet thick (Ref 10). Eleven monitoring wells exist on the property. Limited hazardous constituent data is available (Ref 5, 6). Additionally another three characterization study wells exist on-site. These three characterization study wells were drilled for a specific study and are not monitored regularly. The entire working landfill will have at least 2 feet of cover applied once it is closed in 1999 (Ref 5, 13).

The City of Garland states that no hazardous wastes are accepted at the site. This site is permitted and regularly inspected by the Texas Department of Health, Bureau of Solid Waste Management. Although these inspections have found minor housekeeping problems, there is no information to suggest that significant quantities of hazardous waste have been accepted at the site. However, miscellaneous residential wastes do contain hazardous constituents which may migrate from the site.

The site is a single parcel owned by the City of Garland (Ref 4). Access to the site is controlled by a gatehouse and lockable gate at the entrance. Unauthorized entry is additionally discouraged through fencing alongside Castle Drive and Miles Road (Ref 14). Unauthorized access can be gained through the western wooded boundary; however, access by this route is difficult and unauthorized persons are asked to leave the property.

The site is adjacent to the City of Garland's "old burning dump" and the Miles Road Landfill (TXD980697072). The "old burning dump", where municipal wastes were burned prior to restrictive regulations, is adjacent to the site on its northwest border. The Miles Road landfill is about 1000 feet north of the site on the opposite side of Miles Road. A Site Investigation



is currently being performed, by Fluor Daniel, on the Miles Road landfill site. No CERCLA activities are known to have been performed on the "old burning dump".

Land use within 1/2 mile of the site is primarily agricultural, pasture or undeveloped bottom land. Low density residential areas exist near the site and a church is located across Castle Drive. No schools, businesses, or terrestrial sensitive environments are located within 200 feet of the site. Commercial agriculture occurs on the other side of Miles Road within 200 feet of the site.

The site drains to the southwest into Rowlett Creek, which is less than 4/5 mile from the site (Ref 1). Rowlett Creek outlets 2 1/2 miles south from the probable point of entry (PPE) into Lake Ray Hubbard. Lake Ray Hubbard is used as a main water supply for the City of Dallas and other municipalities. Lake Ray Hubbard was formed by damming the east fork of the Trinity River. The 15 mile downstream segment ends on the east fork of the Trinity River, south of Lake Ray Hubbard. The site is outside of the 500 year floodplain (Ref 9).

Rowlett Creek is fished recreationally, particularly after rains which trigger spawning runs of white bass. There are no known drinking water intakes or other water resource uses along Rowlett Creek from the PPE to it's outlet into Lake Ray Hubbard. Lake Ray Hubbard is fished recreationally. The east fork of the Trinity River south of Lake Ray Hubbard is fished recreationally. There are no known drinking water intakes or other water resource uses along the east fork of the Trinity River from Lake Ray Hubbard to the end of the 15 mile downstream segment.

There are no municipal water wells in the City of Garland (Ref 11). The City of Garland receives its water from Lake Levon. The City of Garland historically used ground water for its municipal water source; however, ground water has not been used since 1960. All municipal wells were abandoned and filled with sand and concrete. The depth to ground water for these wells (3,200 feet) and ground water temperature discouraged further use (Ref 11). There are several private wells in use within a mile of the site. Only one of these wells (b) (6) well) is known to be used as a source of potable water (Ref 16).

There are no federal or state designated sensitive environments near the site (Refs 7, 8). No federal or state designated endangered or threatened species are known to exist within 4 miles of the site (Ref 7, 8). The Texas Garter snake is a state Category 2 (under review) species and may inhabit terrestrial areas within 4 miles of the site.

During the site reconnaissance, gases were seen escaping the landfill through a vent that was submerged with water from rains that occurred during the reconnaissance (see photo number 3 of the attached photo log).

The population surrounding the site is estimated as follows:

0 - 1/4 mile	15
1/4 - 1/2 mile	211
1/2 - 1 mile	1,510
1 - 2 miles	8,712
2 - 3 miles	13,717
3 - 4 miles	20,601

The population for the 0 - 1/4 mile ring was determined by a house count during the site reconnaissance (Ref 16). A total of five houses were determined to be within 1/4 mile of the site. A housing population density (3.01 persons per house) was determined using Reference 15. The population for distance rings starting greater than 1 mile were determined through the use of GEMS (Ref 19). The population for the 1/4-1/2 mile and 1/2-1 mile ring were determined by linearly interpolating the population density from the 0-1/4 mile ring to the 1-2 mile ring.

### **1.3 Site Specific Objectives**

The primary objective of this site inspection is to document the presence, or absence, of hazardous materials both on-site and off-site. An HRS prescore for the site will then be determined. This information will indicate if the site warrants further investigation or if no further action is required.

Although wastes are not currently being accepted at the Castle Miles Landfill portion of this site, this is an active landfill site. One or more additional layers of waste will eventually be interred upon the site. Therefore, the final site drainage and ground water gradient may be

altered prior to landfill closure due to future landfill activity. The sampling to be performed as part of this site sampling investigation can only characterize the site in its current state.

This sampling plan will address all possible pathways of migration. The site, including the Castle Landfill, has 11 ground water monitoring wells and 3 characterization study wells. All of these monitoring wells will be sampled, either as part of this sampling investigation or as part of the Castle Landfill SI, which is being conducted concurrently. The clay cover in place over the most recent cell of waste interred at this site will be sampled to determine potential exposures from both the soil exposure pathway and air pathway. Sediment samples will be taken from the surface water pathway to determine potential migration of contaminants.

## **2.0 DATA REVIEW AND DATA COLLECTION**

All previously collected sampling and non-sampling data are addressed in this section. Proposed data collection activities are also detailed.

The site has 11 ground water monitoring wells which have all been tested for general water quality parameters (Ref 6). In addition, a metals analysis was performed on monitoring well 8A (see Figure 2). This metals analysis has not undergone proper QA/QC to be considered acceptable data for use in this investigation. However, no key metal constituents were identified.

The PA prepared by the Texas Department of Health, Reference 3, did not identify the site as a significant threat to the environment. No samples were taken as part of this study and the information provided is cursory. Based on the PA the site status was determined as "no further action required".

All data collection activities will be conducted in accordance with the following documents:

- "Final Project Work Plan - Revision 1 for the Site Inspection Project, EPA Region VI, Volume I", June 9, 1992, Fluor Daniel.

- "Original Project Field Sampling Quality Assurance Project Plan for the Site Investigations, Region VI, EPA", July 5, 1992, Fluor Daniel.
- "CLP Users Guide", EPA Region VI, not dated.
- "Original Health and Safety Plan, Site Inspections", June 8, 1992, Fluor Daniel.

There are still many questions and data gaps concerning this site. It is expected that some of the questions will remain unanswered and some data gaps cannot be filled using appropriate references. However, an attempt will be made to answer all data gaps during the sampling event, and through additional contact with the State of Texas and the City of Garland. The list of data gaps is given in Table 1. Proposed sample locations and rationale are listed in Table 2. Figure 3 shows the proposed sampled locations.

## **2.1 Source Waste Characterization**

Sample analysis will consist of Target Compound List (TCL) organics and Target Analyte List (TAL) inorganics. The available records do not indicate that there are any particular constituents of concern for this site. Volatile organics are likely to be present through the decomposition of organic materials interred at the landfill. The presence of semivolatiles is possible due to the significant residential construction activity in east Garland and may include various asphalt water proofing materials. Pesticides and PCBs are of concern because the "old burning dump" is adjacent to the site. Inorganics may originate from many waste types. Cyanides may be present from plating wastes and other metal processing wastes. However, significant amounts of industrial waste are not believed to be interred at the site.

## **2.2 Ground Water Migration Pathway**

The site is located in the western portion of the East Texas Basin Province. The regional geologic setting is characterized by mixed, thick sequence of terrigenous (sandstone, siltstone, shale) and carbonate (limestone, dolomite) units that appear relatively undeformed. The general orientation of these strata, including the regional fault pattern, is northeast-southwest. The local geological setting is described as the Ozan formation ("lower Taylor

marl"), which has a thickness of greater than 500 feet (Ref 17). The native surface clays have low permeability but are characterized by very high shrink swell potential (Ref 18) which allows ground water recharge through small fissures in the clay. The gross precipitation in the Garland area is approximately 35 inches per year (Ref 18).

The City of Garland and adjacent cities rely completely on surface water (Lake Levon or Lake Ray Hubbard) for domestic water use. No municipal ground water wells are known to exist within 4 miles of the site. The closest known active domestic drinking water well is that owned by (b) (6) which is within 1 mile of the site. Ground water samples will be taken from this well as part of the concurrent Miles Road Landfill SI. This sample will help determine the background water quality of the shallow aquifer. This sampling point is not depicted in Figure 3 due to its inclusion in another SI.

The site has 11 monitoring wells and 3 characterization study wells (see Figure 2). The reported ground water depths in the monitoring wells vary from 2.50 feet to 46.48 feet below grade (Ref 6). Samples will be taken from monitoring wells numbers 1, 2, 4, 5, 6, 7 and 11 as part of this SI with well purging and waste disposal procedures per the "Generic Project Field Sampling Plan". The other four monitoring wells and three "characterization study wells" will be sampled as part of the Castle Landfill SI.

This site has an engineered clay liner and is built upon an area of low permeability clays. The leaching potential from the bottom of the landfill to ground water is low. The potential for horizontal migration through the soils is also low. However, the very high shrink swell potential of the native soils will increase the potential for migration due to the formation of subsurface cracks in the clays.

### **2.3 Surface Water Migration Pathway**

The overland runoff from the site drains into Rowlett Creek. Rowlett Creek outlets 2 1/2 miles south from the probable point of entry (PPE) into Lake Ray Hubbard. Lake Ray Hubbard is used as a main water supply for the City of Dallas and other municipalities. Lake Ray Hubbard was formed by damming the east fork of the Trinity River. The 15 mile downstream segment ends on the east fork of the Trinity River, south of Lake Ray Hubbard. There are

no federal or state designated sensitive environments along the 15 mile downstream segment.

A section of the site drains into an on-site pond which overflows to Rowlett Creek. Additionally, a water retention pond exists on-site. This pond retains standing water that has been collected by vacuum truck from active areas of the landfill after rainfall events.

The sampling plan has been designed to determine the potential migration of materials by sampling sediment along the surface water drainage which flows through the middle of the Castle Landfill and drains runoff from the Castle Miles Landfill site. Additionally a sediment sample will be taken from the retention pond to characterize the standing water.

#### **2.4 Soil Exposure Pathway**

No residences exist within 200 feet of the site. The McCallum property line is within 200 feet; however, the two residences on the property are more than 200 feet from the site boundary. These two residences will be sampled as part of the Miles Road Landfill SI. Ten permanent employees work at the site (Ref 14). A church is located across Castle Drive from the landfill; however, it is greater than 200 feet from the site. The closest school is Back Elementary which is approximately 3/4 mile southeast of the site.

Currently the site is not accepting waste and has a 12 to 18 inch soil cover (Ref 20). Site access is restricted and the adjacent population is very low. Therefore, the soil exposure pathway is not of major concern.

The sampling plan has been designed to determine if the landfill workers are within 200 feet of observed contamination by sampling the clays on the top and side slopes of the landfill. In addition, samples will be taken down gradient (towards Rowlett Creek) on the property to determine hazardous material migration. Also, samples will be taken at the agricultural field across Miles Road, and on the church property across Castle Drive to determine background concentrations. These locations may not provide reliable background information for pesticides.

## **2.5 Air Migration Pathway**

Currently, the site has a 12 to 18 inch clay cover (Ref 20). Half of the site is covered in yellow clay and half of the site is covered in black clay. The type of clay used depended on its availability (Ref 20). During the site reconnaissance a gas vent was observed bubbling through standing water (see photo number 3 of photolog). This gas vent may have been the result of water displacing air in the cell or gas formation by waste decomposition. An observed gas release increases the air pathway threat. Therefore, samples will be taken in the clay cover to determine what gas constituents exist. The sample shown in the southeast corner of the landfill (see Figure 3) will be taken adjacent to the gas vent if it can be rediscovered during the sampling investigation.

The scope of this SI does not include air sampling. The proposed sampling will indicate if volatile organic compounds are present in surface soils and are available to the air migration pathway.

## **3.0 PROJECT MANAGEMENT**

Key personnel, level of effort and project schedule are addressed in this section of the report.

The EPA project manager for this site is Mr. Lonnie Ross.

The SI Project Manager for Fluor Daniel is Mr. Jonathan Stewart. Mr. Stewart is responsible for the day-to-day management of all SI tasks associated with the work assignment. He is the key point of contact to the EPA Project Manager.

The Team Leader for Fluor Daniel for the Castle Miles Landfill Site is Mr. William Walters. He will obtain site access, perform the site reconnaissance, prepare the sampling plan, direct field activities and prepare the final report.

Mr. Keith Westberry will be responsible for coordinating all sample documentation, including the CLP paperwork.

One additional staff member will assist with sampling, decontamination and documentation.

The sampling inspection is scheduled for the week of June 21, 1993.

#### **4.0 REFERENCES**

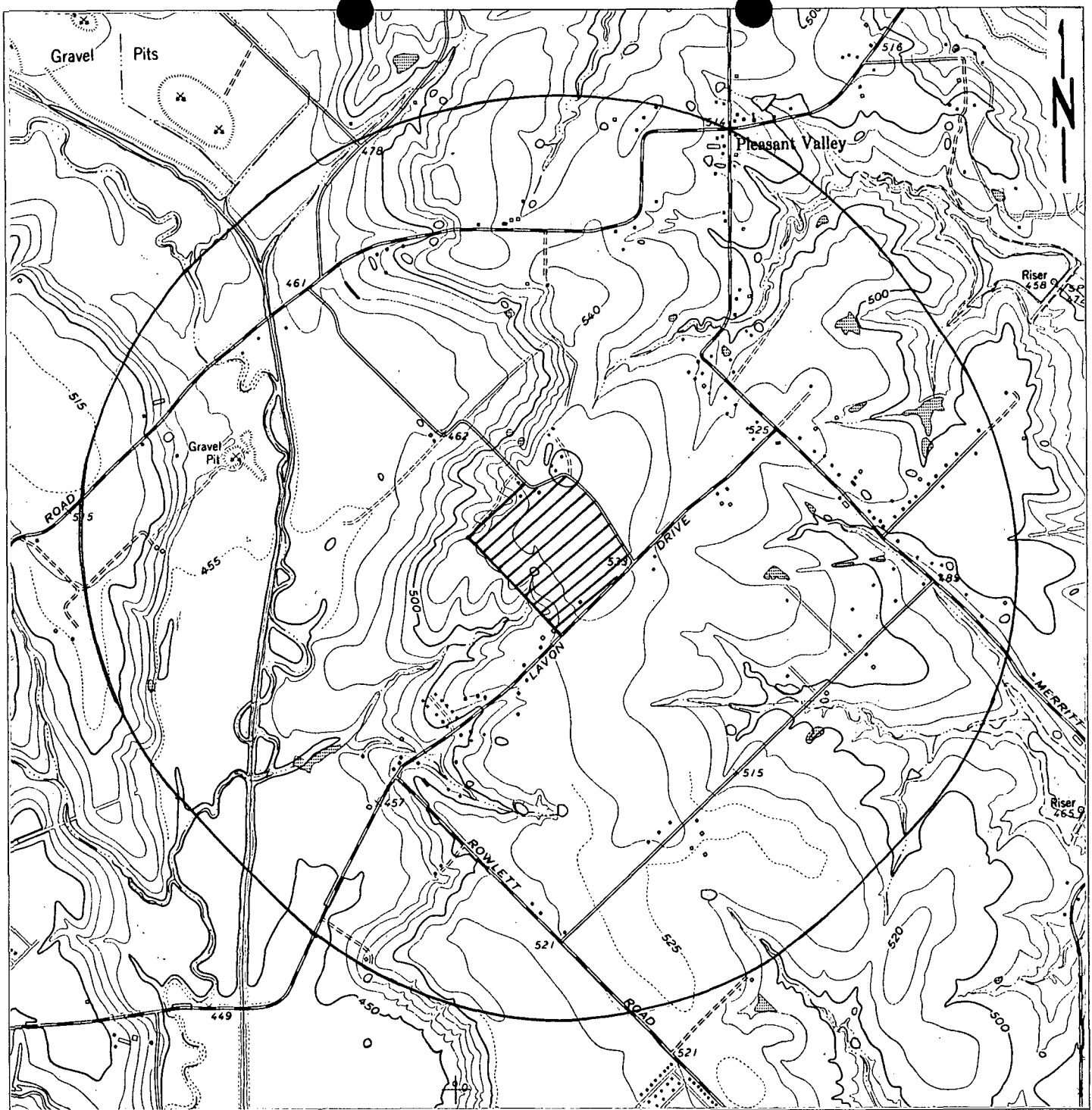
1. U.S. Geological Survey, 7.5 minute topographic map, Rowlett, Tex., 1959 (photorevised 1968 and 1973).
2. Texas Department of Health, "Potential Hazardous Waste Site Identification and Preliminary Assessment", February 20, 1981.
3. Texas Department of Health, "Potential Hazardous Waste Site Final Strategy Determination", February 20, 1981.
4. Record of Telephone Conversations between Tom Casabonne, Fluor Daniel, and the Dallas County Tax Office (various personnel). March 22-30, 1993.
5. Record of Telephone Conversation between Tom Casabonne, Fluor Daniel, and Ken Smith, Landfill Director City of Garland Sanitation Department. March 16, 1993.
6. Groundwater Monitoring Reports, Solid Waste Permit No. 1062-A. Submitted to Texas Water Commission from the City of Garland. February 4, 1993.
7. Record of Telephone Conversation between Josh Sacker, Fluor Daniel, and Jeff Reed, U.S. Fish & Wildlife Service Ecological Division. April 7, 1993.
8. Record of Telephone Conversation between Josh Sacker, Fluor Daniel, and Dorinda Sullivan, State of Texas Parks & Wildlife. April 7, 1993.
9. Federal Emergency Management Agency, Flood Insurance Rate Maps, Garland, Texas, Community-Panel Number 485471 0020 D, Map Revised Date August 15, 1990.
10. Record of Telephone Conversation between Tom Casabonne, Fluor Daniel, and Ken Smith, Landfill Director City of Garland Sanitation Department. April 5, 1993.
11. Record of Telephone Conversation between Josh Sacker, Fluor Daniel, and Jack May, City of Garland Water Department. April 8, 1993.
12. Municipal Solid Waste Facilities Quarterly Report. From the City of Garland to the Texas Water Commission. Second, Third and Fourth Quarter of 1992.
13. Sanitary Landfill Permit Application. Attachment No. 7 - Typical Fill Cross Sections. City of Garland. 1984.
14. Site Operating Plan (revised). City of Garland. October 19, 1992.



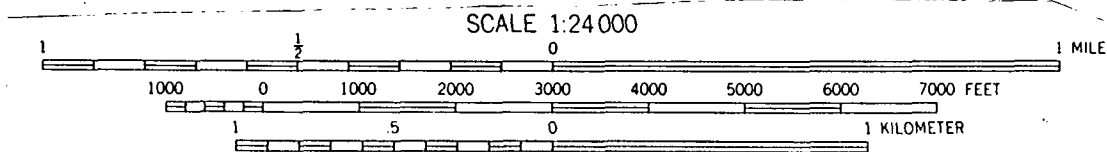
15. County and City Data Book. U.S. Department of Commerce, Bureau of the Census. Pg 715. 1988.
16. Castle Miles Landfill Reconnaissance Field Notebook. William Walters. 5/11/93.
17. Geologic Atlas of Texas, Dallas Sheet. Bureau of Economic Geology, the University of Texas at Austin. 1972.
18. Soil Survey of Dallas County, Texas. United States Department of Agriculture, Soil Conservation Service. Pgs 16, 17, 27, 78, 142 & 144. February, 1980.
19. Geographic Exposure Modeling System, Census data for the Castle Miles Landfill Site, Garland, Texas. May 13, 1993.
20. Record of Telephone Conversation between William Walters, Fluor Daniel, and Ken Smith, Landfill Director City of Garland Sanitation Department. May 21, 1993.

## FIGURES

**FIGURE 1**  
**SITE LOCATION MAP**



NOTE: Topographic Map, Rowlett Quadrangle. 1959. Photorevised 1968 and 1973



QUADRANGLE LOCATION



**FLUOR DANIEL**

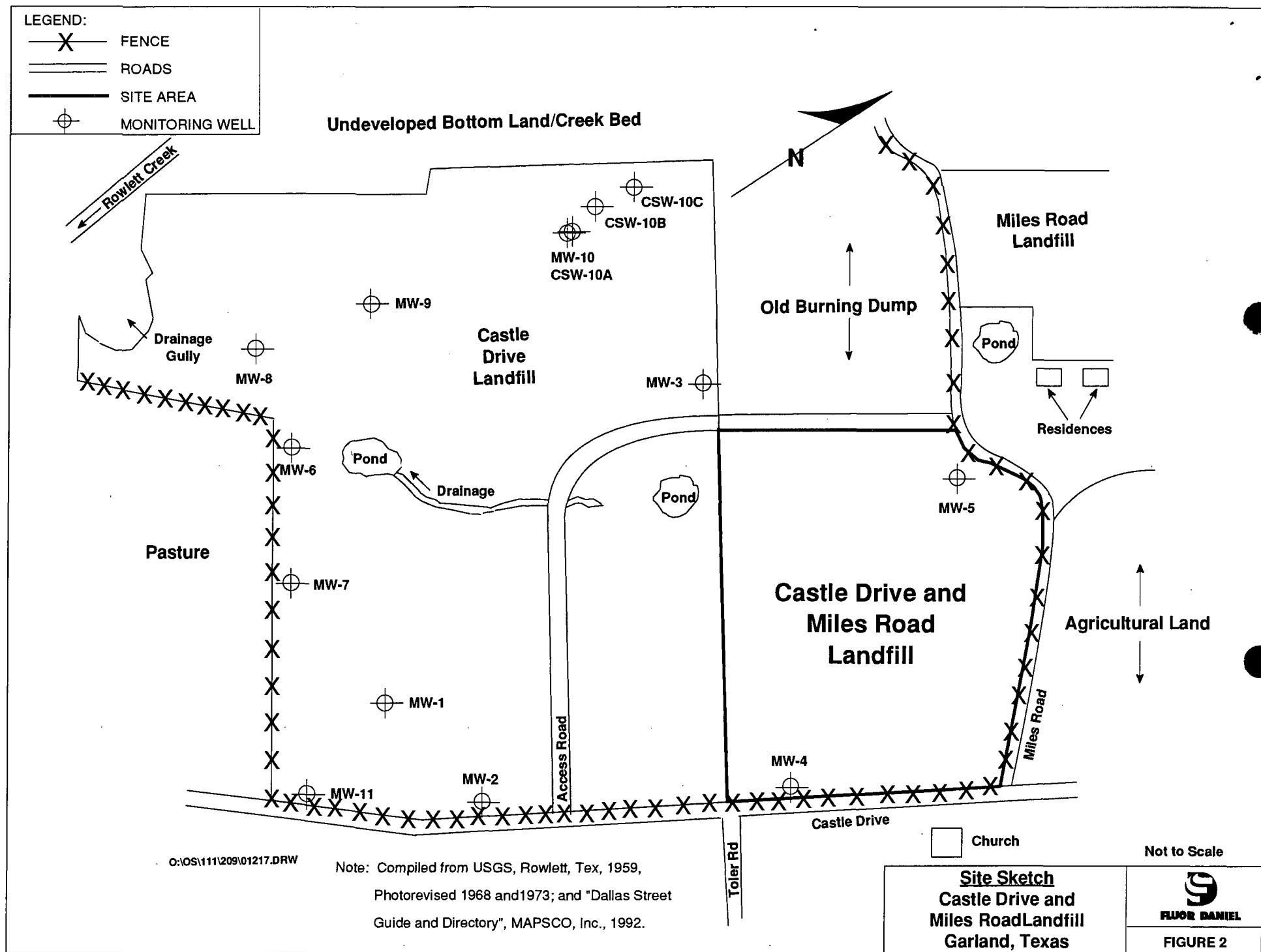
Figure 1

**Location Map**  
 Castle Drive & Miles Road Landfill  
 Garland, Texas

**FIGURE 2**  
**SITE SKETCH**








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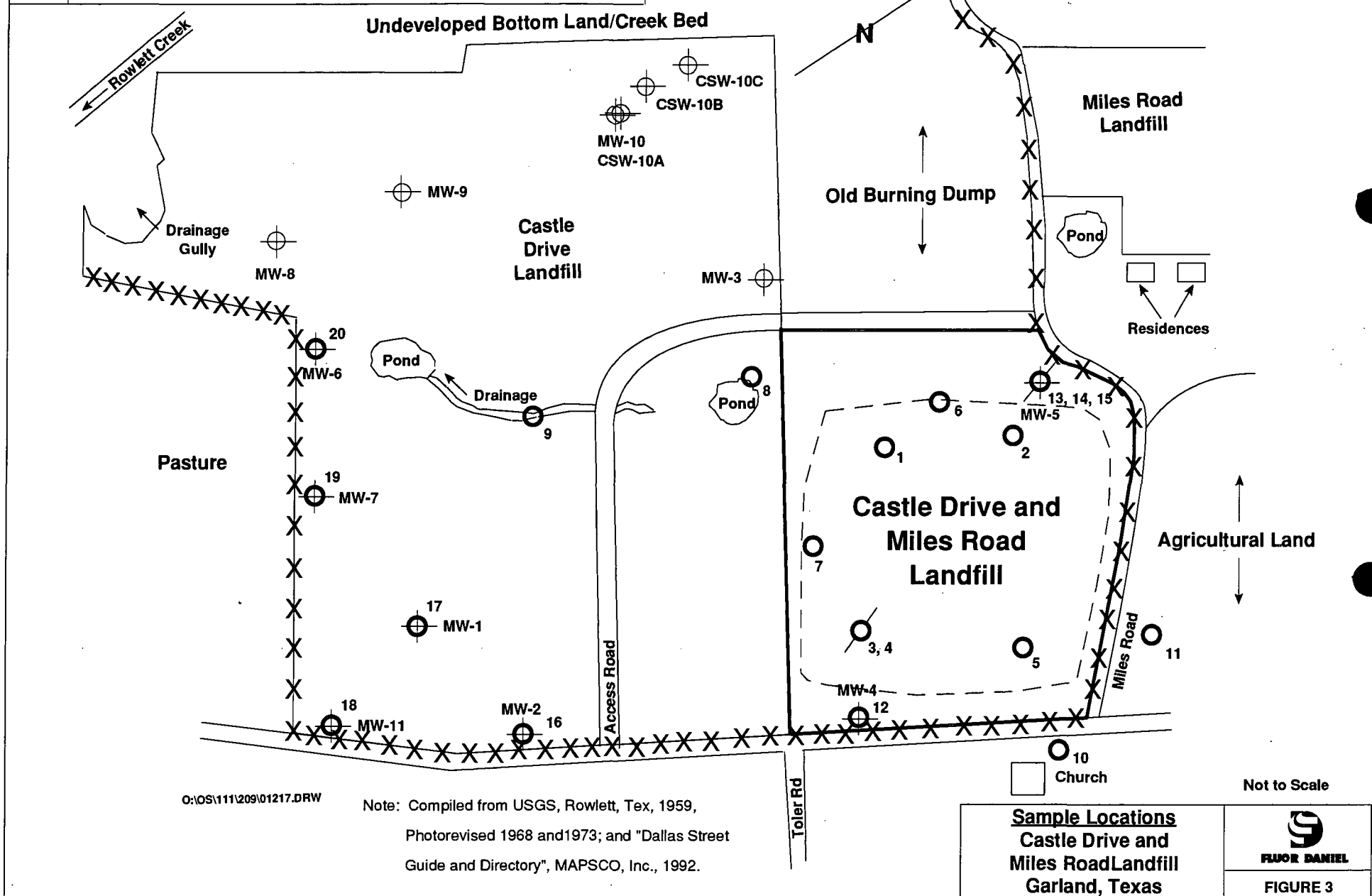
- FENCE
- ROADS
- SITE AREA
- MONITORING WELL



**FIGURE 3**  
**SAMPLE LOCATIONS**

LEGEND:

-  FENCE
-  ROADS
-  SITE AREA
-  MONITORING WELL
-  PROPOSED SAMPLE LOCATION
-  DUPLICATE SAMPLE
-  WASTE DISPOSAL AREA





## TABLES

**TABLE 1**  
**NON-SAMPLING DATA GAPS**

**TABLE 1**  
**NON-SAMPLING DATA GAPS**

Landfill Data

- What is the depth of the waste? What is the total volume of the waste to date and what will be the closed landfill volume?
- Additional site history would be helpful to fully characterize the site (Were there any other historic activities conducted on this site? Has fuel been stored on-site for the earth moving equipment used at the site? Is fuel currently being stored on-site? Are any other chemicals being used on-site for equipment cleaning, etc.?)
- Are there any new or proposed state or local regulations that will impact this site? Will the State of Texas or the City of Garland eventually require leachate collection or soil gas extraction?

Ground Water Pathway Data

- Are there any municipal ground water wells within a four mile radius of the site? If any, what population do they serve? How many private wells are within a four mile radius of the site? Are these private wells used as a resource (i.e. for agriculture, livestock, etc.), as potable water, or both?
- What is the depth to ground water? What is depth of aquifers currently being used within 4 miles of the site? What are the aquifer interconnections?
- What is the soil permeability from the surface to the uppermost used or interconnected aquifer? What is the thickness of the least permeable layer?
- Does ground water connect with surface water within 1 mile of the site?

**TABLE 1 (cont'd)**  
**NON-SAMPLING DATA GAPS**

Surface Water Pathway Data

- What is the flow rate of Rowlett Creek? Are there any resource uses for the water from Rowlett Creek in the segment from the PPE to its discharge into Lake Ray Hubbard?
- What is the total annual surface water and ground water recharge into Lake Ray Hubbard?
- Where are the water intakes located in Lake Ray Hubbard? What population does Lake Ray Hubbard serve? What kind of water treatment is performed on water taken from the lake prior to its distribution? Is there any available water quality data for hazardous constituents?
- What is the flow rate of the east fork of the Trinity River south of Lake Ray Hubbard? Are there any resource uses for the water from the east fork of the Trinity River from Lake Ray Hubbard to the end of the 15 mile downstream segment?
- What is the fish productivity (how many pounds of fish are taken annually) in Rowlett Creek from the PPE to its discharge into Lake Ray Hubbard? What is the fish productivity in Lake Ray Hubbard? What is the fish productivity in the east fork of the Trinity River from Lake Ray Hubbard to the end of the 15 mile segment?
- What is the total length of wetlands along the surface water pathway?

Air Pathway Data

- What is the acreage of wetlands within a 4 mile radius of the site?

**TABLE 2**  
**SAMPLING LOCATIONS AND RATIONALE**

**TABLE 2**  
**SAMPLING LOCATIONS AND RATIONALE**

**Sample 1**

Low concentration soil sample: Collected on top of landfill cell in the southwestern corner of the landfill.

Rationale: To determine potential contamination on-site (source characterization) and document observed contamination within 200 feet of workers (soil exposure pathway).

**Sample 2**

Low concentration soil sample: Collected on top of landfill cell on western edge of landfill approximately 600 feet from Sample 1.

Rationale: To determine potential contamination on-site (source characterization) and document observed contamination within 200 feet of agriculture (soil exposure pathway).

**Sample 3**

Low concentration soil sample: Collected on top of landfill cell on western edge of landfill approximately 600 feet from Sample 2.

Rationale: To determine potential contamination on-site (source characterization) and document observed contamination within 200 feet of agriculture (soil exposure pathway).

**Sample 4**

Low concentration soil sample: Collected on top of landfill cell on southeast corner of site near Miles Road in subsided landfill cell that was noted to have potential leachate in standing water pool (See Photolog, photos #7 and 8). This is also the QA/QC soil sample.

Rationale: To determine potential contamination on-site (source characterization) and document observed contamination within 200 feet of agriculture (soil exposure pathway). Also, to help determine the quality control of the analyses performed on the soil samples taken as part of this SI.

**Sample 5**

Low concentration soil sample: Duplicate of Sample 4.

Rationale: To determine potential contamination on-site (source characterization) and document observed contamination within 200 feet of agriculture (soil exposure pathway). Also, to help determine the quality control of the analyses performed on the soil samples taken as part of this SI.

**Station 6**

Low concentration soil sample: Collected on top of landfill cell on eastern area of the landfill approximately 600 feet northeast of Samples 4 and 5.

Rationale: To determine potential contamination on-site (source characterization) and document observed contamination within 200 feet of agriculture (soil exposure pathway).

**TABLE 2 (cont'd)**  
**SAMPLING LOCATIONS AND RATIONALE**

**Station 7**

Low concentration soil sample: Collected on top of landfill cell on northeastern area of the landfill approximately 500 feet northeast of Sample 6.

Rationale: To determine potential contamination on-site (source characterization) and document observed contamination within 200 feet of agriculture (soil exposure pathway).

**Station 8**

Low concentration soil sample: Collected between residences that are adjacent to the eastern boundary of the landfill.

Rationale: To document possible observed contamination within 200 feet of residents (soil exposure pathway).

**Sample 9**

Low concentration soil/sediment sample: Collected from the edge of the pond adjacent southeastern corner of the landfill.

Rationale: To document possible observed contamination in surface water used as a resource (surface water pathway).

**Sample 10**

Low concentration soil/sediment sample: Collected from sediment in the drainage southwest of the landfill alongside Miles Road.

Rationale: To characterize potential contamination in the surface waste pathway.

**Sample 11**

Low concentration soil/sediment sample: Collected from Rowlett Creek above the PPE.

Rationale: To document background soil/sediment concentrations.

**Sample 12**

Low concentration soil/sediment sample: Collected from the confluence of the site drainage and Rowlett Creek approximately 4/5 mile west of the site.

Rationale: To document possible observed release to the surface water.

**TABLE 2 (cont'd)**  
**SAMPLING LOCATIONS AND RATIONALE**

**Sample 13**

Low concentration ground water (drinking water) sample: Taken from (b) (6) (b) (6) drinking water well that is approximately 1/3 mile north (down gradient) of the site. This is also the QA/QC ground water sample.

Rationale: To document possible observed release to ground water and to help determine the quality control of the analyses performed on the ground water samples taken as part of this SI.

**Sample 14**

Low concentration ground water (drinking water) sample: Duplicate of Sample 13.

Rationale: To document possible observed release to the ground water and to help determine the quality control of the analyses performed on the ground water samples taken as part of this SI.

**Sample 15**

Trip blank: Taken at the same location as Samples 13 and 14.

Rationale : To help determine the quality control of the analyses performed on the ground water samples taken as part of this SI.

**Sample 16**

Low concentration ground water (drinking water): Taken from a drinking water well whose location has not been determined. There are at least two drinking water wells up gradient from the site on the east side of Castle Drive. The location of the sampled well will be determined during the sampling inspection.

Rationale: To determine background ground water concentrations.

(Note: Background soil samples are being taken as part of the concurrent Castle Drive and Miles Road Landfill SI)



**ATTACHMENT 1**  
**ADDENDUM TO THE GENERIC HEALTH AND SAFETY PLAN**

**ADDENDUM TO GENERIC HEALTH AND SAFETY PLAN  
FOR SITE INSPECTION  
CASTLE DRIVE & MILES ROAD LANDFILL, TXD980750368  
WA # 25-6JZZ**

**1.0 INTRODUCTION**

The purpose of this addendum is to identify specific hazards, set action levels, define the levels of protection and to complete emergency response information for reconnaissance and sampling activities at the Castle Drive & Miles Road (Castle Miles) Landfill Site in Garland, Texas.

**2.0 SITE DESCRIPTION**

The Castle Miles Landfill Site is an active sanitary landfill located in Garland, Texas adjacent to the corner of Castle Drive and Miles Road. This site, along with the adjacent Castle Landfill, constitutes the City of Garland municipal landfill system. The geographical coordinates of the center of the site are North 32°56'15" latitude and West 96°34'43" longitude.

The site encompasses approximately 61.5 acres. Currently, the site is not accepting wastes. The active area of the landfill is on the Castle section of the landfill west of the site. The City of Garland owns the property and disposes of approximately 600 tons of municipal solid waste per day into the landfill. Hazardous and liquid wastes are not disposed in the landfill. The site has a clay liner. There are 11 monitoring wells and 3 "characterization study wells" around the site. The perimeter of the site is annually monitored for methane gas emissions.

Access to the site is gained through the gated entrance on Castle Drive. The operating hours for the landfill are 7:00 am to 7:00 pm daily. All site inspection activities will be conducted during the regular operating hours of the landfill.

The site generally drains to the southwest towards Rowlett Creek. The site is outside of the 500 year floodplain.

### **3.0 HAZARDS**

The following sections will describe, based on available information, the chemical and physical hazards associated with this site.

#### **3.1 Chemical Hazards**

On-site soils have not been previously sampled; therefore no existing data exists to determine contaminants of concern. Six to twelve inches of cover are currently on top of the landfill. This cover, along with the fact the no liquid or hazardous wastes are accepted at this landfill, suggests that the chemical exposure hazards will be minimal. However, proper protective equipment will be used to minimize chemical exposure.

Nuisance odors are likely to be present on-site at this active sanitary landfill. Individuals that are particularly sensitive to the landfill odors (headache, dizziness, nausea, etc.) will notify the task leader for work task reassignment or replacement by other available personnel.

#### **3.2 Physical Hazards**

The physical hazards are vehicle traffic, heat stress, and trip/fall hazards. This active landfill has dump trucks and earth moving equipment operating on-site. The hazards due to vehicle traffic are increased due to the limited visibility that these large vehicles afford. Special attention will be paid to remaining out of the path of vehicles while working at the site. Control of heat stress injuries is described in the appendix of the generic HASP. Severe injuries could occur due to trip/fall hazards on this site. Another hazard that may be encountered at this site is poisonous snakes (rattlesnakes or cottonmouths) and fire ants.

### **4.0 MONITORING**

No specific contaminant of concern is known to be present, and high levels of hazardous material are not expected on the surface of this site. However, HNu monitoring will be performed to determine if potentially hazardous volatile organic compounds are being released from the soils during sampling.

## **5.0 PERSONAL PROTECTIVE EQUIPMENT**

Workers entering a potentially contaminated area must have protective equipment available for use. The most likely exposure scenario at this site would be dermal contact and inhalation of volatile organic compounds or dust contaminated with hazardous constituents that reside in the soils to be sampled. Since the existence, types, and concentration of hazardous constituents are not known for this site, the level of protection that is required to be available will be Level C Protection and will consist of the following:

- Full face air purifying respirator with a high efficiency particulate filter and protection from acid gases and organic vapors;
- A 10-minute escape pack for each sampler;
- Polyethylene coated Tyvek with hood;
- Inner latex gloves;
- Outer nitrile gloves;
- Chemically resistant boots with steel toe/steel shank; and
- Hard hats.

The Tyvek coveralls, if used, will be taped at the wrists and ankles.

Due to this site being an active municipal landfill that does not accept liquid or hazardous wastes, the level of protection that is assumed to be necessary is Level D. The Site Task Leader will determine whether an upgrade to Level C is necessary during the sampling inspection based on the results of the HNu monitoring.

Decontamination procedures are defined in the generic HASP and in the sampling plan.

## **6.0 EMERGENCY PROCEDURES**

In the event an emergency situation arises, such as injury, illness, or fire, the appropriate immediate response must be taken by the first person to recognize the situation.

First aid equipment and an emergency eye wash unit will be available on-site. Should a worker be so severely injured that decontamination is not possible the ambulance crew and hospital will be so notified.

A list of emergency contacts are provided below in order of contact. A route map and verbal route description to the hospital is attached to this addendum and will be posted at the site.

**Police, Fire, or Ambulance**

**911**

**Fluor Daniel Health and Safety Manager**

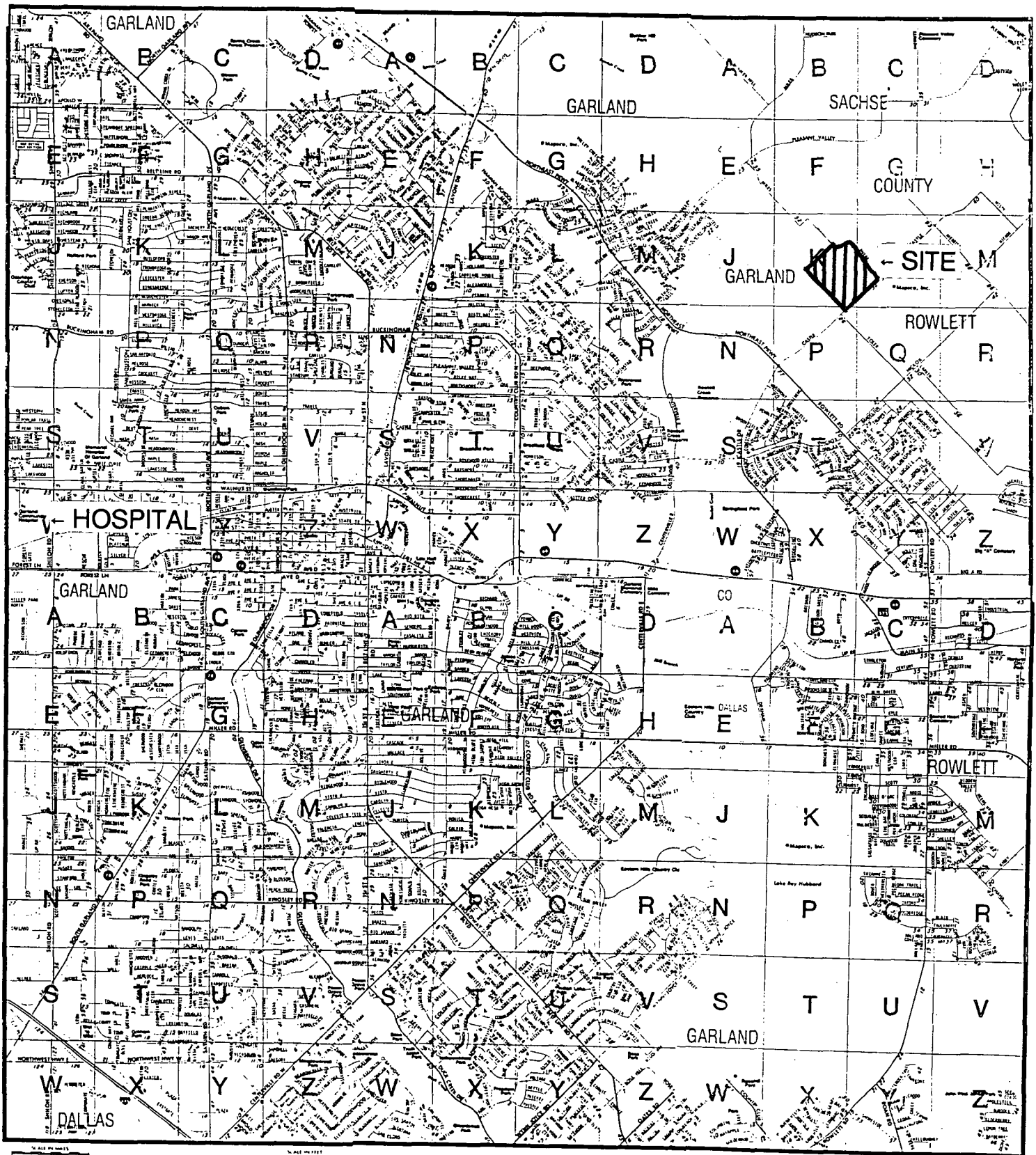
**(214) 450-4100**

**EPA Work Assignment Manager**

**(214) 655-8374**

# ROUTE TO GARLAND COMMUNITY HOSPITAL

276-7116



From Castle & Miles Site:

Take Castle Dr. southwest and travel approximately 2.4 miles, staying left on Castle Dr. as it turns into Dexham Rd. Then turn right (west) on State Highway 66 and proceed for approximately 1.8 miles then turn right (north) on Country Club Rd. Go approximately 0.3 miles then turn left (west) on Walnut St. Proceed on Walnut St. for approximately 3.2 miles then turn left (south) on King St. Garland Community Hospital will be at the end of the driveway. (Alternative hospital is the Memorial Hospital of Garland. Directions are identical through Walnut. Go 2.8 miles on Walnut. Turn right [north] onto Clara Barton and go 0.15 miles to Marie Curie. Memorial Hospital is on the northeast side of the intersection.)

**ATTACHMENT 2**  
**BACKGROUND/SAMPLE STRATEGY**

## BACKGROUND/SAMPLE STRATEGY

<b>Site:</b> <u>Castle Miles Landfill</u>	<b>Conducted By:</b> <u>W. Walters</u>
<b>Location:</b> <u>Garland, Texas</u>	<b>Project Manager:</b> <u>J. Stewart</u>
<b>Tentative field date:</b> <u>Recon 5/11/93</u>	<b>Sampling</b> <u>6/21-25/93</u>

### PART I

#### Site Description (size, structures, extent of pavement)

The Castle Miles landfill and Castle landfill together comprise the current City of Garland operating landfill. The Castle Miles landfill is 61.5 acres in total size with approximately 40 of these acres in use. Landfill has been built up from original subsurface cells to be approximately 20 feet above surrounding ground level. The site is entirely covered in soil (clays) and vegetation. There are no structures on-site.

#### Site Activity (years, processes, waste, disposal practices)

**Past:** This landfill, which accepts only municipal solid wastes, has been in operation since the early 80's.

**Present:** Currently, this part of the operating landfill is not active; however, it will be active in the future.

Previous Sampling?	YES	NO	COMMENT
Groundwater	X	O	<u>Monitoring Wells 1 - 11</u>
Soil/Sediment	O	X	<u></u>
Other	X	O	<u>Methane around perimeter</u>
Have any results been obtained? (Attach on separate page)	X	O	<u>Metals - Well 8A only</u>
Did sample analysis include QC/BKGD?	X	O	<u>QC yes, Background no</u>
Has any remediation occurred?	O	X	<u></u>
Will samples be collected?	X	O	<u></u>



**BACKGROUND/SAMPLE STRATEGY  
PART II**

**Sample Summary and Rationale**

<u>MATRIX</u>	<u># OF SAMPLES</u>	<u>LOCATION</u>	<u>DEPTH</u>	<u>GRAB/COMP.</u>
Soil	7	On-Site	Surface	Grab
Soil	2	Off-Site	Surface	Grab
Sediment	2	Off-Site	Surface	Grab
Ground Water	8	Off-Site	N/A	Grab
Trip Blank	1			

**Sample Analysis**

<u>MATRIX</u>	<u>ANALYSIS</u>						
			VOA	SEMI	PCB/PEST	INORG.	
Soil/Sediment	X	CLP	X	X	X	X	<u>Cyanides</u>
Groundwater	X	CLP	X	X	X	X	<u>Cyanides</u>
	O	CLP	O	O	O	O	_____
	O	CLP	O	O	O	O	_____

**COMMENTS:** Seven samples are on-site, and 10 are off-site with 2 of those being sediment samples along the surface water pathway and two being background samples (note: on-site is defined as directly on top of areas of waste disposal, including side slopes, for the Castle Miles section of the operating landfill). Groundwater samples will be taken at 7 of the 11 monitoring wells (all off-site). Depth to water for the wells being sampled has previously been in the range of 4.00 to 14.86 feet. In addition, we are required to take a trip blank sample.

**GROUNDWATER MONITORING REPORT**

TDH Permit No. 1062-A Monitoring Well I.D. No. MW-8A (D92-14836-3)  
 Submittal for ☒ Background Data ☐ Semiannual/Annual Data ☐ Fourth Year Data  
 Purpose of: Groups 1, 2, 3, & 4 Groups 3 & 4 Groups 2, 3, & 4

Date Sampled: 12/29/92 No. Lt. Bottles Collected: 4+voa Sampled by: Reed Engineering Group  
 Representing: Site Operator ☐ Consultant ☒ Laboratory Personnel ☐  
 Well Purged/Bailed Before Sampling: Yes ☒ No ☐ How Long Before: 24 hours  
 No. Well Volumes Purged: 1 Depth to Water Before Bailing: 14.66 ft Elev 442.07 MSL  
 How Were Samples Collected: Hand pump. Decontamination between wells.  
 Were sample preservation procedures in accordance with TDH Guidelines: Yes ☒ No ☐

GROUP	PARAMETER	LEVEL	UNITS	ANALYSIS METHOD
1	Arsenic	<0.01	mg/l	EPA 7062
	Barium	0.11	mg/l	EPA 6010
	Cadmium	<0.005	mg/l	EPA 6010
	Chromium	<0.05	mg/l	EPA 6010
	Copper	<0.01	mg/l	EPA 6010
	Lead	<0.02	mg/l	EPA 6010
	Mercury	<0.001	mg/l	EPA 7470
	Selenium	<0.01	mg/l	EPA 7740
	Silver	<0.01	mg/l	EPA 6010
	Zinc	0.05	mg/l	EPA 6010
2	Calcium	200.	mg/l	EPA 6010
	Magnesium	26.4	mg/l	EPA 6010
	Sodium	148.	mg/l	EPA 6010
	Potassium	1.1	mg/l	EPA 6010
	Carbonate	<0.1	mg/l	Std. Method 403
	Bicarbonate	850.	mg/l	Std. Method 403
	Sulphate	154.	mg/l	EPA 9038
	Fluoride	0.6	mg/l	EPA 340.2
	Nitrate (N)	0.61	mg/l	EPA 353.3
	Phenolphthalein Alkalinity (CaCO <sub>3</sub> )	<0.1	mg/l	Std. Method 2320
	Alkalinity (CaCO <sub>3</sub> )	697.	mg/l	EPA 310.1
	Hardness (CaCO <sub>3</sub> )	600.	mg/l	EPA 130.2
	Anion-Cation Balance	18.8/18.6	meq/meq	Std. Method 1030F
3	Chloride	54.9	mg/l	EPA 9252
	pH	7.0		EPA 9040
	Specific Conductance	1600	µmho/cm	EPA 120.1
	Total Dissolved Solids	1070	mg/l	EPA 160.1
	Total Organic Carbon	<1.0	mg/l	EPA 9060
	Total Organic Carbon	<1.0	mg/l	EPA 9060
	Total Organic Carbon	<1.0	mg/l	EPA 9060
	Total Organic Carbon	<1.0	mg/l	EPA 9060
4	Iron	<0.05	mg/l	EPA 6010
	Manganese	0.17	mg/l	EPA 6010

Laboratory Representative Signature: Syonia H. Bestucci Phone: (214) 238-5591  
 Laboratory Name: NDRC Laboratories, Inc. Address: 1089 East Collins Blvd. Richardson, TX 75081  
 Site Operator Signature: Ken Smith Date: 2-4-93  
 (SE65)

**ATTACHMENT 3**  
**PHOTOLOG**

Photo No.  
1



Site Name:  
Castle Miles Landfill

CERCLIS # TXD980750368

Location:  
Garland, Texas

Project #: WA #25-6JZZ

Photographer/Witness

William Walters/Keith Westberry

Date 5/11/93

Time Afternoon

Direction North

Description

Panoramic of the western top of the Castle Miles Landfill showing the area currently covered with the yellow clay.



Photo No.  
2



Site Name:  
Castle Miles Landfill

CERCLIS # TXD980750368

Location:  
Garland, Texas

Project #: WA #25-6JZZ

Photographer/Witness

William Walters/Keith Westberry

Date 5/11/93

Time Afternoon

Direction North

Description Panoramic of the eastern top of the Castle Miles Landfill showing the division between the area covered by yellow clay (right) and the area covered by black clay (left).



Photo No.  
3



Site Name:

Castle Miles Landfill

CERCLIS # TXD980750368

Photographer/Witness

William Walters/Keith Westberry

Location:

Date

5/11/93

Time Afternoon

Direction South

Garland, Texas

Description

Photo of observed gas release. Gas bubble is visible in circular area located just below line of standing water in center of photo.

Project #:

WA #25-6JZZ

Photo No.  
4



Page 3  
Of 6

Photographer/Witness

William Walters/Keith Westberry

Date

5/11/93

Time Morning

Direction South

Description

Photo of standing water in southeast corner of the top of the landfill.



Photo No.

5



Site Name:

Castle Miles Landfill

CERCLIS # TXD980750368

Photographer/Witness

William Walters/Keith Westberry

Location:

Date

5/11/93

Time Afternoon

Direction Southwest

Garland, Texas

Description

Photo of monitoring well number 5. Castle Miles Landfill is on extreme left of photo. Photo taken from Miles Road.

Project #:

WA #25-6JZZ

Photo No.

6



Photographer/Witness

William Walters/Keith Westberry

Date

5/11/93

Time Afternoon

Direction Northwest

Description

Photo of monitoring well number 4. Side slope of Castle Miles Landfill and site fence can be seen at top. Photo taken from Castle Drive.

Page 4

Of 6



Photo No.

7



Site Name:

Castle Miles Landfill

CERCLIS # TXD980750368

Photographer/Witness

William Walters/Keith Westberry

Location:

Date

5/11/93

Time Afternoon

Direction Southwest

Garland, Texas

Description

Photo of site drainage that will be sampled as part of this SI. Drainage

Project #:

WA #25-6JZZ

leads to natural pond. Photo taken from site access road.



Photo No.  
8



Site Name:

Castle Miles Landfill

CERCLIS # TXD980750368

Photographer/Witness

William Walters/Keith Westberry

Location:

Date

5/11/93

Time Afternoon

Direction Southeast

Garland, Texas

Description

Photo of water retention pond which receives standing water collected from the site. Side slope of Castle Miles Landfill can be seen in background.

Project #:

WA #25-6JZZ

**ATTACHMENT 4**  
**CLP SAMPLE REQUEST FORM**

**REGION 6**  
**CLP SAMPLE REQUEST FORM**

Site Name: Castle Mies Landfill Location: Garland, TX CERCLIS # TXD980750368

Type of Investigation: ☒ SSI ☐ ESI ☐ HRS ☐ RI/FS ☐ RA ☐ Other: \_\_\_\_\_

Sampling Comp.: Fluor Daniel, Inc Contact: Nathan Stewart Ph.: (214) 450-4100

Shipping Contact: William Walters On Site Ph.: (214) 450-4100 FAX#: (214) 450-4101

Signed By: \_\_\_\_\_ Date: \_\_\_\_\_ Mail Code: \_\_\_\_\_ Ph.: \_\_\_\_\_

(EPA SITE MANAGER, RPM, OSC)

Sampling Date: 6/21 to 6/25/93 Shipping Date: 6/21 to 6/25/93 Spill ID #: \_\_\_\_\_

Turnaround Time: RAS Samples: \_\_\_\_\_ SAS Samples: \_\_\_\_\_

\*\*\*\*\*

Is this activity a Superfund Lead? ☒ (Y) (N) / A PRP Lead? ☐ (Y) (N) / A State Lead? ☐ (Y) (N) / Other: \_\_\_\_\_

Are these samples splits, provided by the PRP? ☒ (Y) ☐ (N) If these are split samples, please provide the names of the labs that the PRP's will use: Organic Lab(s) \_\_\_\_\_ Inorganic Lab(s) \_\_\_\_\_

\*\*\*\*\*

**RAS ANALYSES** (Submit to RSCC on Wednesdays by 11:00 AM, one week prior to your sampling date).

	Low Conc. Waters	Med. Conc. Waters	Low Conc. Soil/Sedm	Med. Conc. Soil/Sedm
TCL Organic (all three fractions)	9		11	
VOA Fraction				
BNA Fraction				
PES/PCB Fraction				
PCDD/PCDF (45 TA)				
TAL Metals + CN	9		11	
TAL Metals				

\*Note: If you are collecting samples from drinking water sources, you must contact Lisa Feldman and obtain a Form from her. Lisa's phone is (713) 983-2129.

TCL = Target Compound List  
TA = Turnaround Time  
TAL = Target Analyte List  
RAS = Routine Analytical Services  
SAS = Special Analytical Services

\*\*\*\*\*

**SAS ANALYSES** (Submit this Form in addition to the SAS Client Request Form three weeks prior to your sampling date).

# of Samp.	Matrix	Conc.	Source	Analytical Parameters Required

COMMENTS:


**ATTACHMENT 5**  
**EVALUATION CHECKLIST**

### EVALUATION CHECKLIST

**NOTE:** Information must be referenced; attach a list of references.

**Site Name:** Castle Drive & Miles Road Landfill, City of Garland

**TDD No.:** TXD980750368

**Reference No.:** \_\_\_\_\_

#### **1. SOURCE AREAS, CONTAINMENT, WASTE QUANTITY**

Complete the following for each area where hazardous substances have been deposited, stored, disposed of, or placed, plus those soils that have become contaminated from migration of a hazardous substance.

(refer to Table 1, and Tables 2-5, 3-2, 4-2, 6-3 and 6-9)

<u>Source Area</u>	<u>Containment</u>	<u>Waste Quantity</u>
<u>Landfill</u>	<u>12 to 18 in of cover</u>	<u>TBD</u>
_____	<u>and minimum 3 ft clay</u>	_____
_____	<u>liner (Ref 1, 2)</u>	_____
_____	_____	_____

#### **2. AVAILABLE ANALYTICAL DATA**

For the media listed below, note if there is a documented observed release or the potential to release to that media. An observed is noted if a hazardous substance is detected at three times the background sample concentration or background sample quantitation limit. A potential to release is noted if wastes were disposed of in a source area which would allow contaminant migration. (refer to PA Data and Rescoring Record Table for additional criteria).

<u>Media</u>	<u>Potential to Release</u>	<u>Observed Release</u>	<u>Comments</u>
Groundwater	<u>X</u>	_____	_____
Surface Water	<u>X</u>	_____	_____
Sediment	<u>X</u>	_____	_____
Soil < 2 feet deep	<u>X</u>	_____	_____
Soil > 2 feet deep	<u>X</u>	_____	_____
Air	_____	<u>X</u>	<u>Gas Seep(Ref 3)</u>
Other (specify, e.g., sludge, source)	_____	_____	_____



### 3. GROUNDWATER PATHWAY

A. Population served by private wells or drinking water supplies within the designated area rings. Note if the water supplies within that ring are private (P), community (C) or both (B). (reference with water supply distribution maps and topographic maps using the average county population density)

<u>Distance</u> (miles)	<u>Population</u>	<u>Type of Supply (P.C. or B)</u>
0 - 1/4	0	(Ref 3)
1/4 to 1/2	0	(Ref 3)
1/2 to 1	3 (est)	Private (Ref 3)
1 to 2	12 (est)	Private (Ref 3)
2 to 3	48 (est)	Private (Ref 3)
3 to 4	192 (est)	Private (Ref 3)

B. Are any of the supplies to the population noted above contaminated? ☐ Yes ☐ No ☒ To be determined

If yes:

- What is the location of the well? \_\_\_\_\_
- What are the contaminants detected? \_\_\_\_\_
- Are any health-based benchmarks exceeded (e.g., MCLs)?  
☐ Yes ☐ No

C. What is the distance to the nearest drinking water well?  
0.60 miles (Ref 3,4)

D. What is the depth to groundwater on the property?  
2.5 to 50 feet (Ref 5)

### 4. SURFACE WATER PATHWAY

A. Identify the surface water bodies and flow rates (cubic feet per second, cfs) along a 15 stream-mile pathway. Identify the uses of each surface water body as:

DW = drinking water

I = irrigation of commercial food crops or commercial forage crops

L = watering of commercial livestock

FP = ingredient in commercial food preparation

R = major or designated recreation area

F = fishery

<u>Surface Water Body</u>	<u>cfs</u>	<u>Use(s)</u>
<u>Onsite Pond</u>	<u>n/a</u>	<u></u>
<u>Rowlett Creek</u>	<u>TBD</u>	<u>F</u>
<u>Lake Ray Hubbard</u>	<u>n/a</u>	<u>DW, I, L, FP, R, F</u>
<u>Trinity River (east fork)</u>	<u>TBD</u>	<u>F</u>

B. Identify the population served by surface water intakes along the 15 stream-mile pathway.

<u>Surface Water Body</u>	<u>cfs</u>	<u>Use(s)</u>
<u>Lake Ray Hubbard</u>	<u>n/a</u>	<u></u>

C. Are any of the intakes to the population noted above contaminated?     Yes   X  No

If yes:

- What is the location of the intake?
- What are the contaminants detected?
- Are any health-based benchmarks exceeded (e.g., MCLs)?  
    Yes     No

D. Are there any fisheries along the 15 stream-mile pathway that are contaminated?     Yes   X  No

If yes:

- What is the location of the fishery?
- What are the contaminants detected?
- Are any health-based benchmarks exceeded (e.g., MCLs)?  
    Yes     No

E. Identify sensitive environments noted on PA Table 5, along the 15 stream-mile pathway and note the surface water body it is on.

<u>Sensitive Environment</u>	<u>Surface Water Body</u>
<u>None (Ref 6,7)</u>	<u></u>

F. Are there any sensitive environments along the 15 stream-mile pathway that are contaminated?     Yes     No

If yes:

- What is the location of the sensitive environment?
- What are the contaminants detected?

G. What is the distance to nearest surface water body?  
 2000 feet (Ref 4)

H. What is the flood frequency of the nearest surface water body?  TBD years

## 5. SOIL EXPOSURE PATHWAY

A. What is the number of people who reside on the property or within 200 feet of contamination who occupy a residence, attend a school, or attend a day care center? 0 (Ref 3)

B. What is the number of workers on the property and at a workplace within 200 feet of contamination? 10 (Ref 8)

## 6. AIR PATHWAY

A. Population residing within the designated area rings. (reference with topographic maps using the average county population density for populations from 0 to 1/2 mile, and with GEMS for 1/2 to 4 miles)

<u>Distance (miles)</u>	<u>Population</u>
0 - 1/4	<u>15 (Ref 3, 9)</u>
1/4 to 1/2	<u>211 (interp. Ref 3, Ref 10)</u>
1/2 to 1	<u>1,510 (interp. Ref 3, Ref 10)</u>
1 to 2	<u>8,712 (Ref 10)</u>
2 to 3	<u>13,717 (Ref 10)</u>
3 to 4	<u>20,601 (Ref 10)</u>

B. Determine the wetland acreage for the following rings:

<u>Distance (miles)</u>	<u>Total Wetland Acreage</u>
0 - 1/4	<u>TBD</u>
1/4 to 1/2	<u>TBD</u>
1/2 to 1	<u>TBD</u>



## References

1. Record of Telephone Conversation between William Walters, Fluor Daniel, and Ken Smith, Landfill Director City of Garland Sanitation Department. May 21, 1993.
2. Record of Telephone Conversation between Tom Casabonne, Fluor Daniel, and Ken Smith, Landfill Director City of Garland Sanitation Department. April 5, 1993.
3. Castle Miles Landfill Reconnaissance Field Notebook. William Walters. 5/11/93.
4. U.S. Geological Survey, 7.5 minute topographic map, Rowlett, Tex., 1959 (photorevised 1968 and 1973).
5. Groundwater Monitoring Reports, Solid Waste Permit No. 1062-A. Submitted to Texas Water Commission from the City of Garland. February 4, 1993.
6. Record of Telephone Conversation between Josh Sacker, Fluor Daniel, and Jeff Reed, U.S. Fish & Wildlife Service Ecological Division. April 7, 1993.
7. Record of Telephone Conversation between Josh Sacker, Fluor Daniel, and Dorinda Sullivan, State of Texas Parks & Wildlife. April 7, 1993.
8. Site Operating Plan (revised). City of Garland. October 19, 1992.
9. County and City Data Book. U.S. Department of Commerce, Bureau of the Census. Pg 715. 1988.
10. Geographic Exposure Modeling System, Census data for the Castle Miles Landfill Site, Garland, Texas. May 13, 1993.